SOUTHEAST IDAHO

SPOTTER NEWS

NATIONAL WEATHER SERVICE POCATELLO/IDAHO FALLS WINTER 2004

Editors' Notes

Hello All! Hope 2004 is off to a great start. This winter edition of the spotter newsletter has information on our drought situation, wind chill, scheduled spotter training for March and April and a lot more.

Spring and summer weather is right around the corner…we hope…so if you spot any severe weather associated with winter storms or upcoming spring thunderstorms, please notify us at: 1-800-877-1937.

As always, if you would like to schedule a tour, please write or call me anytime.

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Sunny Days Ahead!

Weather Spotter Of the Quarter

Our weather spotter of the quarter is from Macks Inn!

Jim Terrell from Macks Inn/Fremont County is our weather spotter of the quarter. For the past 15 years, Jim has been consistent and accurate when it comes to giving us his weather spotter reports. He has helped us out during significant snowstorms this winter and he continues to volunteer his time and efforts whenever severe weather threatens. Jim takes a lot of pride in his work and he is one of our most reliable weather spotters. We appreciate this Jim! Jims continued dedication and contribution as a weather spotter to the Pocatello National Weather Service helps save lives and property. This makes Jim Terrell our weather spotter of the quarter!

On The Weather Menu Inside…

Avalanche Outreach

A WFO Pocatello contingent, (left to right above), including Meteorologist In Charge (MIC) Jim Meyer, Lead Meteorologist Rick Winther, and Meteorologist Jack Messick were invited by the Sawtooth National Forest Avalanche Center and the Sun Valley Heli-Ski club to do several weather presentations in the Idaho Sun Valley region. The presentations covered a variety of topics including Winter Weather 101, the new Digital Gridded Database, case study of a heavy snow event in Sun Valley, and the winter outlook for 2003-2004. The presentations incorporated material about our new capabilities with the digital database. To our surprise, we found that many of our prototype digital products on the internet were being used by both the Avalanche Center and the Heli-Ski club several times a day. The new Point Forecast Matrices (PFM) were especially useful to them; providing details that they were unable to get in a text product. In fact, they were excited to find out that we could update the format of our avalanche guidance product by incorporating some of the PFM weather elements into an improved IFPS formatted avalanche guidance product.

The avalanche forecasters from the Sawtooth National Forest Avalanche Center provided a crash course on how core snow samples (Rutschblock) were performed in the back country. Avalanches are controlled by three variables: terrain, snow pack characteristics, and weather. These factors decide the actual avalanche risk. With this knowledge, the avalanche forecaster can issue a forecast of the avalanche danger for the Sawtooth Mountain Range. The WFO Pocatello members also had the opportunity to snow-shoe into the Sawtooth Mountains near 9,000 feet elevation to look at the Galena Summit SNOTEL site. The trip concluded at the popular rest stop Galena Lodge, where they met the lodge manager and found that the Lodge would be more than happy to reestablish a COOP program. Weather information from this elevation will greatly enhance the WFO Pocatello forecasting ability, especially the type and amount of precipitation near this high elevation location.

Wind Chill Facts: Wind Chill is not the actual temperature but rather how wind and cold feel on exposed skin. As the wind increases, heat is carried away from the body at an accelerated rate, driving down the body temperature. ***Animals are also affected by wind chill; however, cars including car radiators, plants, water pipes, bridges and other inanimate objects are not.*** If the actual air temperature is say 36 Fahrenheit and the wind chill is 22 Fahrenheit, water will not freeze. The wind will act to get it to the actual air temperature (36F in this case) quicker, but will not go any lower unless the air temperature drops. Exposure to cold can cause frostbite or hypothermia and become life threatening.

Frostbite is damage to body tissue caused by extreme cold. A windchill of -20 Fahrenheit will cause frostbite in just 30 minute. Frostbite causes a loss of feeling and a white or pale appearance in extremities, such as fingers, toes, ear lobes or the tip of the nose. If symptoms are detected, get medical help immediately! If you must wait for help, slowly rewarm affected areas. However, if the person is also showing signs of hypothermia, warm the body core before the extremities.

Hypothermia is a condition brought on when the body temperature drops to less than 95 Fahrenheit. It can kill. For those who survive, there are likely to be lasting kidney, liver and pancreas problems. Warning signs include uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness and apparent exhaustion. Take the persons temperature. If below 95 Fahrenheit, seek medical care immediately.

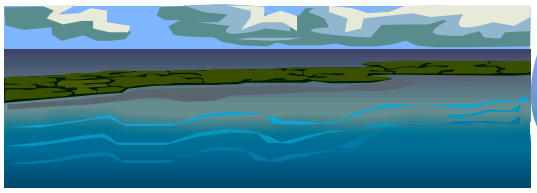
Wind Chill Chart

Wind (mph) \ Temperature (°F)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5		36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10		34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15		32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20		30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25		29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30		28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35		28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40		27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45		26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50		26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55		25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60		25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes | 10 minutes | 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph) *Effective 11/01/01*



Currents....

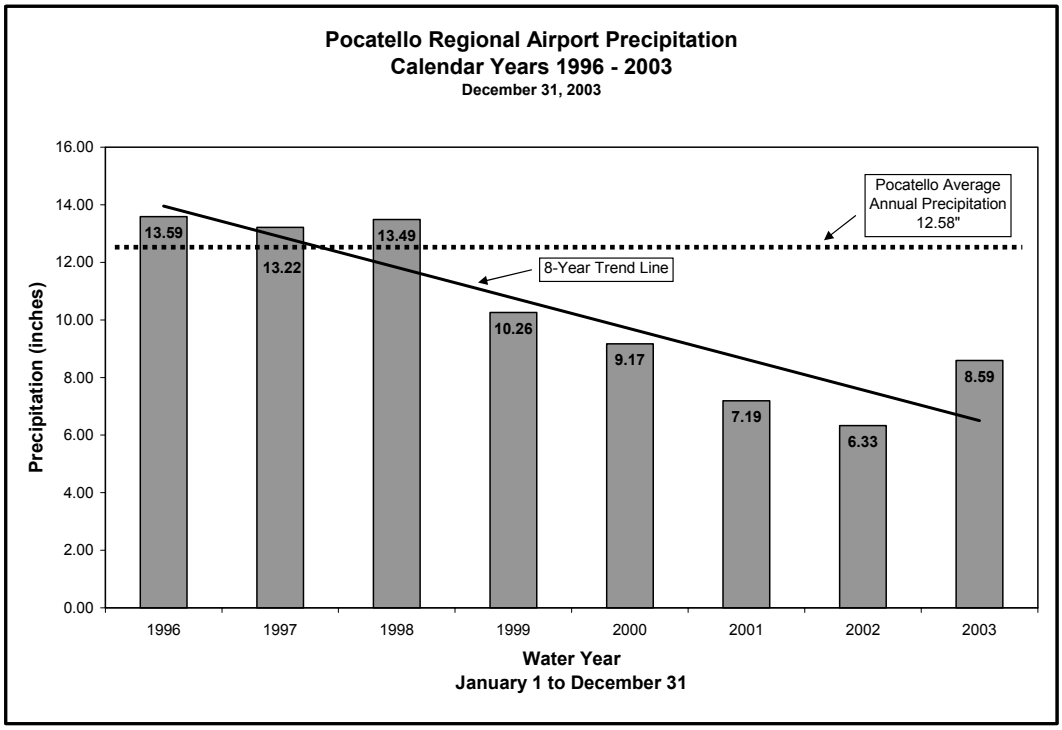
Newsflash! Snow Dumps on Idaho - Breaks December Record!

Things weren't looking too good for us as far as water goes in 2003 - then WHAM! But what a great WHAM! The December 26 snowfall event dropped 13 inches of the white stuff on Pocatello. How significant is that? Well, the all-time record snowfall for one day for the Pocatello Regional Airport is 14.6 inches, which fell in 1916. The second greatest one-day snowfall was 14.0 inches set in April 1921. And the third? Yep! December 26, 2003!

So, what does this mean with our drought situation? First, the important factor in snowfall is how much water it holds. In other words, when you melt the snow, how much water will you have left? This is called the Snow Water Equivalent (SWE). The SWE for the December 26 storm was 0.83 inches. A much easier number to swallow!

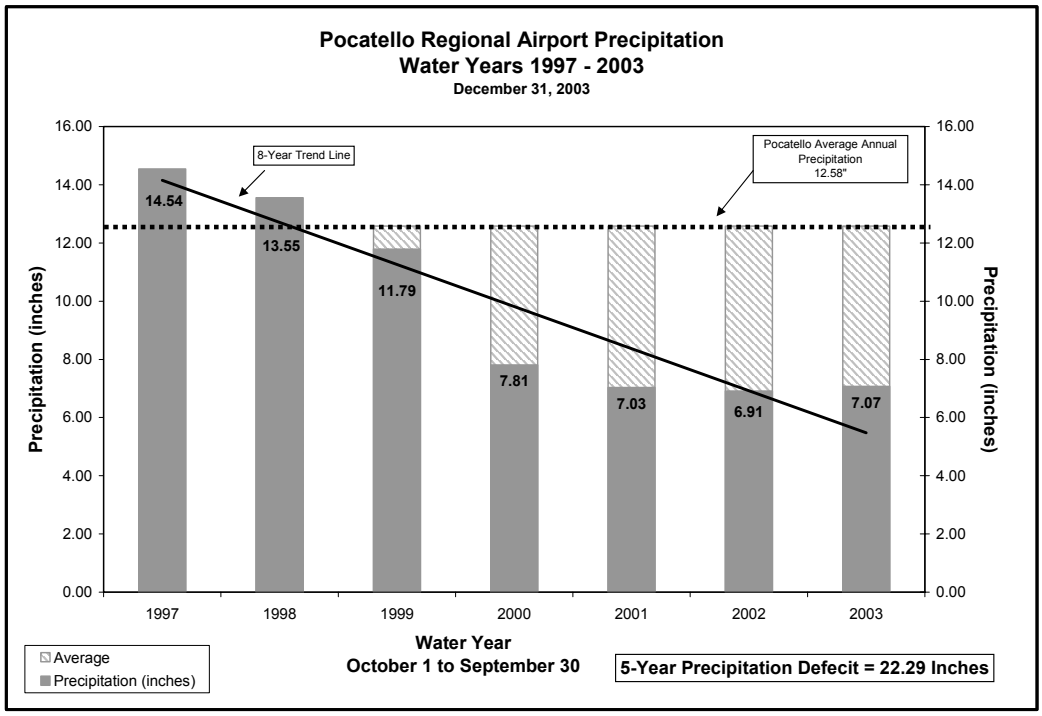
Just the facts, mam... OK, so we got 0.83 inches from one storm. What about the rest of the month? Are we recovering from the drought? To answer these questions, we have to go to the numbers - 'cuz they just don't lie!

Look at the graph below showing precipitation information for the Pocatello Regional Airport from 1996 to 2003 calendar years. The dashed line indicates the average annual precip, 12.58 inches. The solid downward slanting line indicates the eight-year trend that has developed due to five consecutive years of drought. The jump in precip from 2002 to 2003 was due entirely to the precip that fell during the final week of 2003. Even though we had a good bump up, this shows quite clearly that we aren't out of the water yet, or would that be "in the water"...

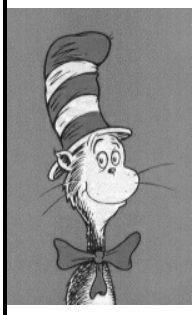


If you look at water year data, which runs from October 1 to September 30, we are slightly above 100% of normal for the current year: actual = 3.23 inches and average = 3.20 inches. That's promising! So, how much would we need to get back to normal? The Water Year graph below reveals how much precip we have been lacking for the five drought years, which totals 22.29 inches. Meaning, if we wanted to make up for the deficit, we would need an additional 22.29 inches of precipitation.

If we were to space this out over the winter, that is, from now until April 1, we would need to have a storm like we had on December 26, get this, 27 more times!! All being equal, that would mean, oh, about 351 inches of snow! But we could stretch that out over the remainder of the water year until September 30. We could get in the form of a good number of snow storms and either lots of severe thunder storms or a mix of thunder storms and just good ole' rain.



Not to burst anybody's bubble of hope, but I doubt we're going to get that since the record amount of precipitation for one year at the Pocatello Regional Airport is 22.43 inches, which fell in 1909! This should give you a good perspective on where we stand in our current situation. Until we see what really happens, enjoy the rest of the winter by playing hard and enjoying the snow!!



Now, More Fun Facts!

Does it have to be 32°F or colder for it to snow? Nope! It has been known to snow with temperatures in the mid 40°s. However, temperatures are below 32°F up in the clouds where the snow is forming.

On the average, one inch of rain is equivalent to how many inches of snow? 10 inches, 1 inch, a foot? Usually, 10 inches of snow melts down to about an inch of water. For great skiing, you want less water with more snow for the light, fluffy stuff. For high SWE, you want more water to less snow.

Sherrie Hebert/Service Hydrologist

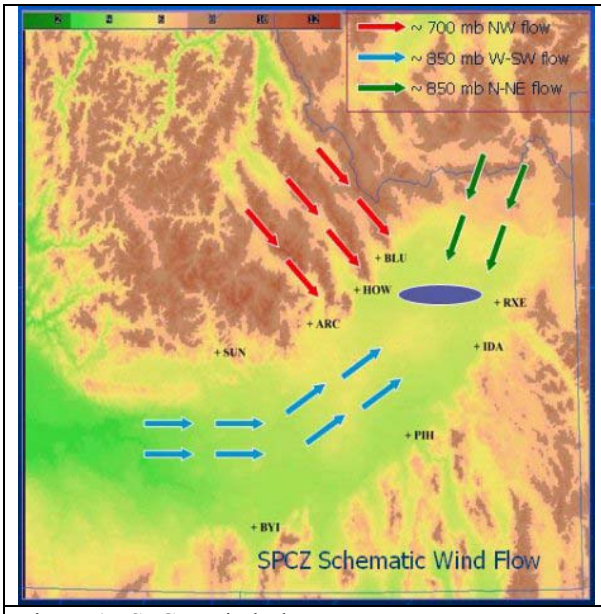


Figure 1: SPCZ Wind Flow Patterns

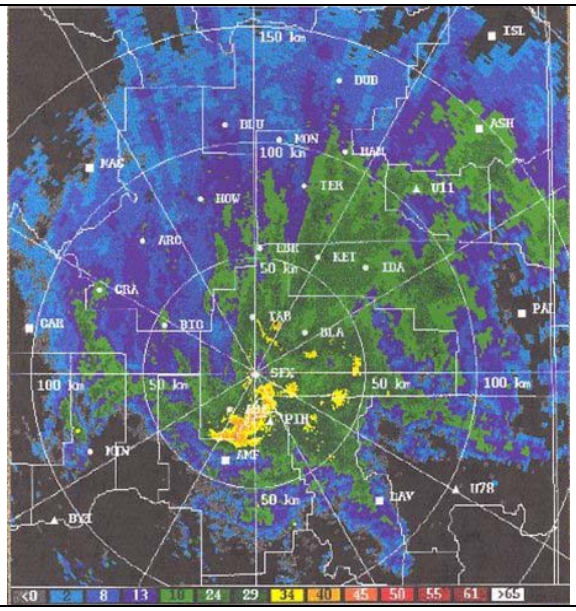


Figure 2: Snowstorm on 11/26/1995

Snake River Plain Convergence Zone

by

Thomas Andretta
Staff Meteorologist

The Snake River Plain Convergence Zone (SPCZ) forms from the intersection of winds traveling in different directions in eastern Idaho. This intersection of winds usually occurs after a cold front passes across eastern Idaho. The weather associated with the convergence zone can range from frequent gusty winds to periods of rain or snow.

Figure 1 indicates the paths of these different intersecting winds flows: northwest winds (red arrows) in the Birch Creek, Big Lost, and Little Lost valleys; northeast winds (green arrows) in the Upper Snake River Plain; and southwest winds (blue arrows) in the Lower Snake River Plain. The zone of convergence, located between Howe (HOW) and Rexburg (RXE), is indicated by the hatched (blue) oval in the figure.

Figure 2 shows a convergence zone on NWS Doppler radar from November 26, 1995 that resulted in several inches of snow in the Snake River Plain. The different colors refer to the intensity scale of the snow (bottom of figure). Note the widespread light snow (blue color) over the Snake Plain with heavy snow (yellow color) near Pocatello (PIH) and American Falls (AMF) on the display.

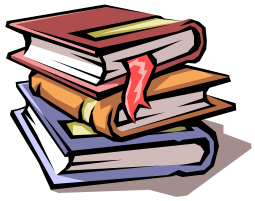
For a color version of this article, please see the *Spotter Newsletter* on the NWS Pocatello-Idaho Falls, Idaho website on the Internet at: http://wrh.noaa.gov/Pocatello

***WEATHER SPOTTER TRAIING*: Here is our latest Outreach schedule to educate new weather spotters and provide refreshment training to our current weather spotters. We hope to see you there!**

2004 Outreach Activities List

County	Public Invited	Dates - 2004	Location	Volunteers and/or w Vern
Clark Spotter Training	**Yes**	**March 31 7-9 pm**	**Dubois County Annex Building**	**Vern &**
Bingham	**Yes**	**April 8 630-830 pm**	**County Courthouse, second floor conference room**	**Vern &**
Gooding Jerome Lincoln Twin Falls Spotter Training	**Yes**	**April 13 7-9 pm**	**Jerome EMS Building**	**Vern & BOI &**
Caribou Spotter Training	**Yes**	**April 21 630-830 pm**	**Soda Springs Emergency Services Building -40 West Center Street**	**Vern & Ken**
Caribou Weather Safety Training	**LEPC members**	**April 21 noon**	**Soda Springs Emergency Services Building -40 West Center Street**	**Vern & Ken**
Bonneville Storm Ready Presentation	**Yes**	**April 28 900 -930 am**	**Law Enforcement Center (600 N Capital Ave) Basement EOC Meeting Room**	**Vern & Jim &**
Bonneville Spotter Training	**Yes**	**April 28 930 -1130 am**	**Law Enforcement Center (600 N Capital Ave) Basement EOC Meeting Room**	**Vern &**
Cassia/ Minidoka Spotter Training	**Yes**	**April 29 7-9 pm**	**sheriff's office (129 East 14th Street) basement training room**	**Vern &**

Weather Quiz: Time to test your Winter Weather knowledge…(Answers on back)



1. Which of the following is not affected by wind chill? (hint…read page 3)
- a. cat
- b. bird
- c. car radiator
- d. people

2. At which temperature does water spontaneously freeze?
- a. 32 Fahrenheit
- b. 0 Fahrenheit
- c. -40 Fahrenheit

3. In a temperature inversion, would Island Park experience warmer or colder temperatures during the day than Pocatello? At night…who would typically be colder under a strong temperature inversion…Island Park or Pocatello.

4. Can snow fall from clear skies?
- a. Yes
- b. No

5. Which statement(s) is/are false?
- a. hail is frozen rain which is a product of winter weather
- b. sleet is a chunk or stone of ice dropped by a thunderstorm
- c. temperatures are below 32 Fahrenheit up in the clouds where snow is forming
- d. air temperatures right above the ground must be 32 Fahrenheit or colder for it to snow
- e. freezing rain is frozen raindrops that freeze before reaching the ground.

Answers to the Weather Quiz:

1. ***C***. Remember that wind chill is the combination of wind and temperature and is based on the rate of heat loss from exposed skin such as that of a person or animal. As the wind increases, heat is carried away from the body at an accelerated rate, driving the body temperature down. Wind chill has no effect on cars or other objects.

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2. ***C.*** Ice always melts at 32 Fahrenheit, but water does not always freeze at 32 Fahrenheit…unless it is pure water. Otherwise it must freeze onto something. However…at -40 Fahrenheit, water freezes spontaneously. If you poured a cup of water out of a window with the air temperature outside at -40F, the water would freeze before it struck the ground.

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3. ***Warmer/Island Park***. In a temperature inversion during the day…Island Park would be warmer. The valley locations like Pocatello/Idaho Falls would remain cold. Cold air is heavier than warm air and is trapped at the ground beneath the inversion. Normally it gets colder as you rise up in the atmosphere but now the temperatures are "inverted"….hence the name temperature inversion. At night…the higher terrain like Island Park is above the inversion and with clear skies is much colder, while underneath the inversion, it is cloudy and not as cold and possibly fog and/or light flurries will occur.

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4. ***Yes*** Ice crystals sometimes fall from clear skies when the temperatures are in the single digits or colder.

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5. ***A,B,D,E are all false*** …A and B are reversed. Sleet is frozen rain that happens in winter weather while hail is a chunk or stone of ice dropped from a thunderstorm. C is correct. D is false because it has been known to snow with temperatures in the mid 40s. E is false because the way it reads now it would be defined as sleet. Freezing rain is liquid rain that falls and freezes on contact to an already frozen surface such as a road, sidewalk, car, or tree.

Celebrating the Lewis & Clark Bicentennial 1803-1806 – 2003-2006

Weather Quote of the Quarter

November 17, 1803 ***Where is the water?***

Having risked his keelboat over exposed rocks and shoals due to the low waters along the Ohio River during the Fall of 1803, Lewis remarked about the drought conditions affecting the rivers, *"measured the hight of the bank in the point and found it 36 F[eet] 8 I[inches] above the level of the water at thime which may with much propriety be deemed low water mark as neither the Ohio or Missippi wer ever known to be lower—"* (Lewis, November 17, 1803)

Ohio and Mississippi Rivers

See You In May!!! THINK SPRING

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